REMARKS

Claims 30 and 36-38 are pending in the subject application upon entry of the amendments. Claims 30 and 37 have been amended to disclaim the cited art. Claims 31-35 have been cancelled without prejudice or disclaimer and to expedite allowance of the application. Claims 10-29 have been cancelled without prejudice or disclaimer in view of the Restriction Requirement. Favorable reconsideration in light of the amendments and the remarks which follow is respectfully requested.

Objection to the Claims

Claim 30 stands objected to because of informalities. The Examiner's comments are appreciated and have been appropriately addressed. Hence, it is respectfully requested the informality objection be waived.

Indefiniteness Rejection

Claims 30-38 stand rejected under 35 U.S.C. § 112, second paragraph. Claim 30 has been amended to more clearly define the subject matter of certain aspects of the invention. Claims 32, 33, and 35 have been cancelled. Accordingly, withdrawal of the rejection is respectfully requested.

Obviousness Rejection

Claims 30-38 stand rejected under 35 U.S.C. §103(a) over Saalmann (WO 00/59551 A1; 2000) in view of Stedman (U.S. Patent No. 6,177,403; 2001) and Park (U.S. Patent No. 5,516,629; 1996).

Claim 30 recites "*mixing photosensitizer methylene blue with plasma by a **peristaltic pump** to enable an interaction between the photosensitizer methylene blue and at least one virus in the plasma; illuminating the photosensitizer methylene blue-plasma mixture with **a LED for 60 seconds**; filtering the photosensitizer methylene blue-plasma mixture by passing the mixture through a filter comprising **attapulgite** to remove the photosensitizer methylene blue.*"

Saalmann fails to teach or suggest mixing photosensitizer methylene blue with plasma by a peristaltic pump. In fact, Saalmann teaches using a single-part or multi-part pump, which is a piston pump. *See* page 3, line 9 of Saalmann.

Contrary to the teaching of Saalmann, the claimed invention employs mixing photosensitizer with plasma by a peristaltic pump, which is a roller pump. In order to form a circulatory passage for plasma, to extend the illuminating duration for the flowing plasma, and to improve the inactivating efficiency for viruses, the claimed invention employs a peristaltic pump. The peristaltic pump can provide a suitable flow rate of the plasma for inactivating viruses. When employing the peristaltic pump, the flow rate can be controlled in the range from 30 to 50 ml/min, and the results of inactivating Sindbis virus is excellent, with an inactivating result of more than 4.5 $LgTCID_{50}$.

Saalmann further fails to teach or suggest illuminating a photosensitizer methylene blue-plasma mixture with a LED for 60 seconds. Saalmann teaches using a full wavelength visible light with a wavelength of 380 nm to 780 nm. *See* page 9, lines 6-7 of Saalmann.

Contrary to the teaching of Saalmann, the claimed invention employs illuminating a photosensitizer methylene blue-plasma mixture with a LED for 60 seconds. The maximum absorption wavelength for photosensitizer methylene blue falls within the range from 600 to 700 nm, and the free radical such as singlet oxygen and the like produced by excitation of methylene blue using above wavelength range of light can obtain the best results of inactivating viruses. The wavelength of the LED light source used in the subject invention is 630 nm, which is close to the peak excitation wavelength for methylene blue. Thus, the LED will produce higher efficiency for exciting methylene blue, as compared to a full wavelength visible light source. Further, the time for inactivating viruses is shorter, for example, the illuminating duration of the claimed invention is only 60 seconds, while the illuminating duration in Saalmann is 1 hour.

In addition, Saalmann fails to teach or suggest filtering a photosensitizer methylene blue-plasma mixture by passing the mixture through a filter comprising attapulgite to remove the photosensitizer methylene blue. Saalmann simply does not mention filtering the mixture by using an attapulgite.

Stedman is cited in regards to its teachings of mixing whole blood with heparin and Park is cited in regards to its teaching of inactivating Sindbis virus. Neither Stedman nor Park, however, contains any teachings regarding mixing photosensitizer methylene blue with plasma by a peristaltic pump to enable an interaction between the

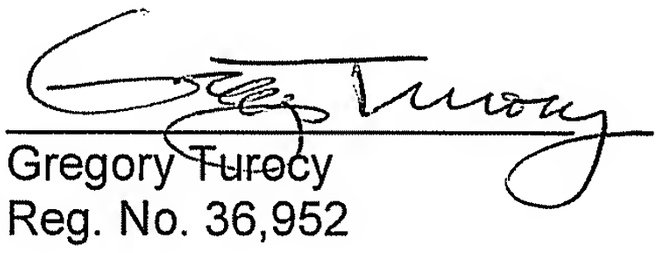
photosensitizer methylene blue and at least one virus in the plasma; illuminating the photosensitizer methylene blue-plasma mixture with a LED for 60 seconds; and filtering the photosensitizer methylene blue-plasma mixture by passing the mixture through a filter comprising attapulgite to remove the photosensitizer methylene blue. As such, these additionally cited documents fail to cure the aforementioned deficiencies of Saalmann in regards to claim 30. Since claims 35-38 directly depend on claim 30, the cited art cannot render claims 30 and 35-38 obvious. Withdrawal of the rejection is therefore respectfully requested.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

Turocy & Watson, LLP



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